THE AGRICULTURAL SITUATION

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A Brief Summary of Economic Conditions

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MANY FARMERS are having the unusual experience this year of being able to market larger quantities of food products at higher prices—notably the producers of cattle, lambs, milk, cream, and eggs. These products are in increasing demand by consumers, supplemented in the case of dairy and poultry products by increased Government purchases. Prices of commodities formerly exported in large volume—wheat, cotton, tobacco—are being supported also by increased Government commodity loans. * * * Consumer buying power continues to rise as industrial production for defense expands, and increasing quantities of farm commodities are being bought by the Government. Present outlook is that a continuing high level of consumer demand and Government purchases and loans will yield farmers a larger income in 1942 than in 1941. Unpredictable, however, is the extent to which increasing costs of farm production will counterbalance this gain. The ratio of prices received to prices paid by farmers was 100 in August—highest since January 1937.

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Commodity Reviews

DEMAND: Rise Less Rapid

THE over-all demand for farm products, which had a marked expansion in the spring and early summer, is likely to rise less rapidly during the next few months.

One reason for the remarkable improvement in demand in recent months was the tremendous increase in industrial activity and consumer incomes. But more and more bottlenecks are developing in industry, and further increases in the output of defense goods may be largely at the expense of civilian goods production. Employment and pay rolls, however, will continue to rise because of more labor required in producing highly specialized defense equipment, rises in average wage rates, and expansion in service industries.

A considerable part of the increases in over-all demand for farm products in recent months has arisen directly or indirectly from Government programs. The increase in the loan rates on 1941 crops was reflected in both futures and cash markets for the affected commodities. The food-for-defense program not only has removed considerable quantities of products from regular commercial channels, but also has stimulated speculative and storage demand for commodities such as butter. Thus, the effects of these programs already have been discounted to a considerable extent in the rapid increase in demand and prices of recent months.

Another demand factor which had an important influence in recent months was the general buying movement of imported commodities threatened by international developments. Prices of fats and oils, for example, rose rapidly from February to June, but remained fairly stable for about 2 months as the trade eased off buying operations after a considerable inventory accumulation.

Speculative demand in general has been a much more important factor in agricultural markets in 1941 than in many recent years. As in the stock market, it tends to move by fits and starts, and the combination of circumstances mentioned above resulted in a general strong upward reaction from late winter to summer. Various uncertainties now overhang the speculative markets, and the general feeling of optimism has been toned down to some extent, although a new wave may hit the markets at any time.

Despite these developments, or any temporary setbacks which might occur as a result of unfavorable foreign news or domestic influences, the underlying demand factors will continue strong at least as long as the war is in its present phase, and the general trend of demand will be upward.

F. L. THOMSEN.

PRODUCTION: Up

Good weather over most of the country except in Northeastern States has favored the food and feed crops this year. The average of yields per acre of most of these crops is higher this year than last; the area for harvest of all important crops combined is about 5 million acres larger than in 1940.

Midsummer crop reports indicated larger crops of corn, wheat, barley, rye, rice, grain sorghums, hay, sweetpotatoes, sugarcane for sugar, apples, and peaches this year than last; but smaller crops of oats, buckwheat, peanuts, potatoes, sugar beets, hops, and pears.

Acreage planted to vegetables for canning and processing was materially increased this year; unless yields are reduced by drought, it is likely that the production of these commodities will be the largest on record. * * *

But production of vegetables for fresh market shipment is expected to be slightly smaller in the aggregate this year than last, on account of unfavorable weather.

Numbers of cattle, sheep, hogs, and poultry are being increased quite generally the country over in response to the food-for-defense program, good pastures, abundant feed, and good consumer demand. Total production of livestock and livestock products this year will probably be the largest on record.

PRICES: Higher

The farm price ratio of 100 in August was the highest since January 1937. Average of prices received and prices paid was 131 percent of the pre-World War base. Adding taxes and interest to prices paid, put the ratio at 97 percent of the base period. The inclusion of wages—currently about 60 percent above 1909–14—would give a ratio of 96 percent of prewar.

The index of prices received by farmers is composed of more than 40 farm products. During the first half of 1941 prices received by farmers for crops averaged about the same as a year earlier, whereas prices of livestock and livestock products averaged 21 percent higher than during the first half of 1940. Prices of crops in mid-August were averaging about 44 percent higher than at the same time last year.

Index Numbers of Prices Received and Paid by Farmers

[1910–14=100]

Year and month	Prices received	Prices paid	Buying power of farm products [1]
1940			
May	98	123	80
June	95	123	77
July	95	122	78
August	96	122	79
September	97	122	80
October	99	122	81
November	99	122	81
December	101	123	82
1941			
January	104	123	85
February	103	123	84
March	103	124	83
April	110	124	89
May	112	125	90
June	118	[2] 128	[2] 92
July	125	129	97
August	131	131	100

[1] Ratio of prices received to prices paid.
[2] Revised.

Prices of Farm Products

Estimates of average prices received by farmers at local farm markets based on reports to the Agricultural Marketing Service. Average of reports covering the United States weighted according to relative importance of district and States.

Product	5-year average, August 1909–July 1914	August average 1910–14	August 1940	July 1941	August 1941	Parity price, August 1941
Cotton, lb ---- cents	12.4	12.3	9.23	14.32	15.33	16.74
Corn, bu ---- do	64.2	70.9	63.1	69.6	70.0	86.7
Wheat, bu ---- do	88.4	89.5	60.1	85.6	88.5	119.3
Hay, ton ---- dollars	11.87	11.35	7.10	7.66	7.64	16.02
Potatoes, bu.[1] ---- cents	69.7	84.0	68.0	76.1	68.6	95.6
Oats, bu ---- do	39.9	40.9	26.7	32.7	32.5	53.9
Rice, bu ---- do	81.3	----	[2] 74.6	110.3	104.5	109.8
Tobacco:						
Flue-cured, types 11–14, lb.[3] ---- do	22.9	----	18.0	----	23.8	24.0
Maryland type 32, lb.[1] ---- do	23.0	----	23.2	35.0	35.0	19.3
Apples, bu ---- dollars	.96	.72	.79	.95	.85	1.30
Beef cattle, cwt ---- do	5.21	5.08	[2] 7.51	8.78	9.07	7.03
Hogs, cwt ---- do	7.22	7.30	[2] 5.84	10.20	10.39	9.75
Chickens, lb ---- cents	11.4	11.7	13.4	16.8	16.3	15.4
Eggs, doz ---- do	21.5	18.1	17.2	25.6	26.8	[4] 28.1
Butterfat, lb ---- do	26.3	24.1	26.7	36.6	36.0	[4] 33.1
Wool, lb ---- do	18.3	18.8	27.3	36.3	35.7	24.7
Veal calves, cwt ---- dollars	6.75	6.59	8.59	10.27	10.56	9.11
Lambs, cwt ---- do	5.87	5.51	7.52	9.43	9.32	7.92

[1] Post-war base.
[2] Revised.
[3] Base price crop years 1934–38.
[4] Adjusted for seasonality.

FARM LABOR: Busy

Nearly 12 million people will be working on the farms next month—filling silos, picking cotton, cutting tobacco, picking fruit, digging late potatoes, harvesting rice, picking and husking corn, and preparing the seedbed in the Plains country for new crops of winter grains. About one-fourth of this number will be hired labor; the remainder, farm family workers.

All season the reports have been of an insufficient supply of farm labor to meet the increased demand for farm workers. Farm wages were raised to the highest levels in more than a decade, but for many farm workers the pull of industrial opportunities at high wages was irresistible. Farmers have had to get along with less help—and yet the production of food and feed is larger this year than last.

Working harder and longer hours this season, farm families and their hired hands have used machinery more intensively than ever before. Short cuts have been made to intensify farm work and produce the increased quantities of food needed for national defense. Nature has contributed with good weather over most of the country.

INCOME: Increase

Farm income is increasing seasonally now. Total for the remainder of this year will be the largest in more than a decade for this time of year. Total from marketings and Government payments was 4,333 million dollars in the first 6 months of 1941, compared with 3,824 million dollars in the first half of 1940. Total for the last 6 months of 1941 has been forecast at 6,367 million dollars as compared with 5,296 million in the last half of 1940.

Cumulative totals for the first 7 months of this year, with comparisons for preceding years, are shown in the accompanying table. The total from marketings of crops was 1,564 million dollars, as compared with 1,475 million in the corresponding period of 1940; total from marketings of livestock and livestock products was 3,335 million as compared with 2,612 million last year. Cash income from grains and tobacco was smaller this year than last, but income from all other major groups of products was larger.

Month and year	Income from marketings	Income from Government payments	Total
	Million dollars	*Million dollars*	*Million dollars*
July:			
1941	887	15	902
1940	673	35	708
1939	605	36	641
1938	647	34	681
January-July:			
1941	4,899	343	5,242
1940	4,087	445	4,532
1939	3,723	450	4,173
1938	3,837	292	4,129

WHEAT: Near-Record

Growers produced this year the second-largest crop of wheat on record for this country. The largest on record was 1,009 million bushels in 1915. This year the crop has been indicated at 953 million bushels. In addition to this year's production there was a carry-over of 387 million bushels of old wheat on July 1. The total supply of wheat—aggregating 1,340 million bushels—is the largest on record.

Of the total supply, it is estimated that domestic disappearance in 1941–42 will be about 670 million bushels. This means that approximately 670 million bushels will be available for carry-over and export. Exports in 1940–41 totaled only 34 million bushels; exports in 1941–42 may be even less than this figure. There is now in the United States practically a 2 years' supply of wheat.

Despite this heavy supply situation, prices of wheat are considerably higher than at this time last year, but substantially below parity. Prices of domestic spring wheat at Buffalo

have been higher than prices of Canadian wheat of comparable quality, c. i. f., duty paid, at Buffalo; but large quantity imports of Canadian wheat are being prevented by import quota restrictions on wheat and flour.

COTTON: Supply Down

The 1941–42 domestic supply of American cotton, estimated at 22.9 million bales, is about 150,000 bales smaller than in 1940. The carry-over from last season was increased by about 1.6 million bales, but the 1941 crop has been estimated to be 1.8 million bales smaller than the 1940 outturn.

Domestic cotton consumption totaled 9.7 million bales in 1940–41—the largest on record. Consumption is expected to continue at or near high record levels during the next few months, stimulated by a high level of consumer buying power, and by large Government orders. The shutting off of imports of silk also will add volume to consumer demand for cotton goods this season.

Exports of cotton totaled only 1.1 million bales during the 1940–41 season. Of this total, shipments of "barter cotton" were slightly less than 300,000 bales. Commercial exports probably will be even smaller this season, but there may be a considerable quantity of cotton exported under the terms of the Lend-Lease Act.

Prices of cotton in this country reflect the rising level of business activity, the high level of domestic cotton consumption, and the higher Government loan rate on the 1941 crop. Other factors include the smaller crop produced this year.

FEED: Supply Up

Agricultural Marketing Service reported last month that with fair crops of corn and oats and unusually large crops of barley and grain sorghums the total quantity of feed grains produced this year is expected to be nearly 100 million tons. This would be about 1 percent above production last year, and the second largest since 1932. The outturn this year is sufficient for the increased numbers of livestock in prospect without drawing heavily on the large reserves of grain on hand.

Supplies of corn, oats, barley, and grain sorghums—production plus carry-over from last year—will total about 124 million tons for 1941–42. This is slightly larger than the record supplies of 1932–33 and 1940–41. Allowing for a 5-percent increase in the number of grain-consuming livestock during 1941, the 1941–42 supply per grain-consuming animal unit will be 4 percent below that of last year, but much above the 1928–32 average.

The 1941 supply of hay, indicated at nearly 109 million tons, is the largest in more than 20 years. The supply per hay-consuming animal unit, allowing for a 2-percent increase in hay-consuming livestock, is a little above last year and the second largest on record. Supplies of hay are much larger than average in the North Central and Western States, but are considerably below average in New England. Increased shipments of feedstuffs into New England will be required this year.

CATTLE: Increase

Cattle are expected to continue to sell at higher prices this year than last, despite larger marketings this fall and winter than in the like period of 1940–41. Consumer-buying power is increasing, and will continue to increase along with expanding industrial production. Many cattlemen are planning to increase marketings of cattle and calves next year.

The total number of cattle and calves on farms and ranches has increased by about 7.5 million head during the last 4 years. The total on January 1 next will likely be close to the high record figures of early 1934.

Increases beyond this number would mean a record volume of marketings in subsequent years, when demand conditions may not be as good as they are now. Even though marketings are increased substantially next year, there may still be a small increase in numbers of cattle and calves on farms and ranches.

Heavy marketings this fall and winter are indicated by reports that there were 17 percent more cattle on feed this August 1 than last, and that a large proportion of the total was nearly ready for market. In addition to these marketings, there will be a seasonal increase in the supply of grass-fat cattle during the next few months.

Feeders planning for next season are confronted with the prospect of higher prices of stocker and feeder cattle this fall than last, and of higher prices of feed during the feeding period. In this event, prices of well-finished slaughter cattle will have to average materially higher in 1942 than in recent months in order to yield favorable returns from cattle feeding.

HOGS: Increase

Nineteen forty-one production of pigs may total 83 million head, or approximately 5 percent more than the output in 1940. The spring pig crop was about the same as in 1940; the fall crop has been indicated at a figure about 13 percent larger than in the fall of 1940. About two-thirds of the increase this fall is in the western Corn Belt, where hog production is still below the predrought level.

A further increase in pig production is in prospect next spring, and for all of 1942 the output may exceed the high record figures of 1939. But consumer demand is expected to continue to improve during the next year or two, and to yield favorable prices to producers in relation to prices of feed. Supplementing the domestic-consumer demand are the heavy Government purchases of pork and lard under food-for-defense programs.

Prices of hogs in mid-July were the highest in nearly 4 years. Prices are lower now, but the general level is considerably higher than at this time last year. Prices normally decline during late summer and early fall when the spring crop is marketed in large volume, but the decline this year will probably be less than the usual seasonal decrease. The hog-corn price ratio is higher than at this time last year, and is favorable for the feeding of corn to hogs.

LAMB: Record

The 1941 lamb crop, totaling 34.5 million head, was the largest on record. The increase over last year's crop was 1.7 million head. This sharp increase was the result of an increase of about 500,000 head in the number of breeding ewes on farms and ranches this year over last, and an increase in the number of lambs saved per 100 ewes. The lamb crops in both the native and western sheep States were the largest on record.

A striking feature of the estimates is the increase in production of lambs in Texas. Sheep production has increased sharply in this State during the past several years. The Texas lamb crop this year totaled more than 5 million head—roughly 25 percent of the western lamb crop, and 15 percent of the total number of lambs raised in the United States. Other western sheep States showing a considerable increase this year were South Dakota, Montana, and Wyoming.

Total slaughter of sheep and lambs during the remainder of this year will be somewhat larger than during the like period of 1940. Even so, prices are expected to average higher than at the same time last year, in view of the continuing good consumer demand for meats. This winter and next spring, also, prices likely will average higher than during the same period in 1940–41.

WOOL: Record

Mill consumption of apparel wool is setting a new high record this year. The total will be more than 900 million pounds, grease basis—approximately double our domestic production. Imports have increased sharply in recent months; total volume of imports this year will probably exceed 500 million pounds, provided shipping space continues to be available.

The quantity of wool shorn, or to be shorn, in the United States this year has been estimated at 400 million pounds. This is about 3 percent larger than the previous high-record production of 388 million pounds in 1940, and 9 percent above the 10-year (1930–39) average. (This estimate does not include wool pulled from slaughtered sheep and lambs, which has averaged 64 million pounds in recent years.)

Stocks of apparel wool reported by United States dealers and manufacturers on June 28 totaled 392 million pounds, grease basis. This was almost 50 percent larger than the stocks a year earlier; it was the largest volume of June stocks in recent years. In addition, large quantities of wool were being held on farms and ranches in producing States.

Prices of wool in this country are the highest in more than a decade. Mills already have purchased wools to cover their needs for several months; no material change in prices is expected during this period.

FATS, OILS: Up

Factory production of fats and oils was 9 percent larger during the first half of 1941 than in the like period of 1940. But despite this increase, the stocks of fats and oils in the hands of manufacturers, importers, and exporters were 9 percent smaller at the end of the period than at the corresponding time last year. The increased demand for these commodities for human consumption and industrial use is reflected in prices averaging 48 percent higher this July than last.

Prospect is that the output of cottonseed oil and lard will be smaller during the last half of 1941 than in the same period of last year. August crop reports indicated a 14-percent smaller cottonseed crop this year, and the marketings of hogs have been smaller than a year earlier. But the output of linseed oil, soybean oil, butter, and certain other fats and oils probably will be larger this fall and winter than last.

DAIRY: Production Up

Milk and cream continue to flow in high record volume for this time of year—to market, to creameries, condensaries, and processing plants. Prices are above the levels of a year ago, in response to increasing consumer buying power and Government purchases under food-for-defense programs. The gross income of dairymen the country over this year will likely set a new high record. Additional increases in production are urged by the Government, for better nutrition at home and for shipments abroad.

Nationally, there appears to be plenty of feed available for increased dairy production. Regionally, the situation is not so good, and especially in the Northeast where some concern is expressed over the ability to get feed this winter. In some individual instances it is stated that unless feed is available dairy herds may be reduced. To help supply feed, the Commodity Credit Corporation is engaged in storing feed at eastern terminals and arranging for the storage of feed on eastern dairy farms.

Highlights of Government dairy reports in August were that prices received by farmers for milk and cream had risen substantially above

their usual relation to feed costs, that farmers were feeding as much grain per cow as they ordinarily feed about mid-October, and that milk production per cow was the highest for that time of year in 17 years of record.

FRUITS: Supply

Larger packs of dried prunes and raisins this year have been indicated by late-summer reports. But the carry-over from last year is much smaller than in recent years, as result of Federal and State marketing and buying programs which have supplemented increased consumer demand. Total supply will be larger than in 1940–41. Total supply of other dried fruits—apples, apricots, peaches, pears, dates, figs—will be about the same as in 1940–41.

The commercial apple crop has been indicated at 125.6 million bushels as compared with 114.4 million bushels in 1940. Largest increases are in summer and fall varieties. Prices of summer varieties have been lower this year than last. But for the entire 1941–42 season it is expected that increased consumer buying power will outweigh the factor of increased supply.

TRUCK CROPS: Prices Up

Production of truck crops for fresh market shipment is slightly smaller for this fall and winter than last. Acreage was increased about 2 percent this year, but yields have been adversely affected by unfavorable weather. Market truck crops in general have lagged in volume this year. The smaller supply has yielded considerably higher prices this year than last, a situation which is expected to continue during the next few months.

By commodities, there are smaller supplies of snap beans, cabbage, carrots, celery, lettuce, onions, peppers, and watermelons for fall markets, but larger supplies of lima beans, cantaloups, cauliflower, cucumbers, eggplants, peas, spinach, and tomatoes.

In contrast, a substantial increase is indicated in total production of truck crops for processing. Acreages of these crops were increased this year, and the plants have been favored by relatively good growing conditions. The carry-over of most canned vegetables was sharply reduced this season, but this will be more than offset by increased 1941 packs.

Growers of truck crops for processing are getting higher prices this season than last, and costs of processing have increased. Prices of canned vegetables will be somewhat higher this fall and winter than last.

POULTRY: Records

More chickens are being raised on farms this year than ever before. Besides farm production, more than 150 million broilers will be produced commercially. The production of turkeys—estimated at more than 35 million birds—is also a new high record * * * And as commercial dispatches report, "the hens on farms have been doing their utmost for national defense"—setting new high records per bird in the production of eggs.

Ordinarily, so large an increase in the production of poultry and eggs would mean lower prices. But this year the Nation needs all, and more, of these commodities. In addition to the larger domestic demand, increasing quantities of poultry products are required by the Government for export to Britain. These demands are reflected in higher prices to producers this year than last.

Farmers in many parts of the country report they have been getting highest prices for eggs in years. Marketings of eggs have been relatively larger than the increase in production, indicating that farmers have been selling a larger proportion of their output this year. It is expected that prices of poultry and eggs will continue to stand in favorable relationship to prices of feed this fall and winter—a situation conducive to increased production.

—Frank George.

The Farm Real Estate Situation

A GENERAL improvement in the demand for farm real estate is evident from reports on land sales by the Federal land banks and the Federal Farm Mortgage Corporation. Inasmuch as these institutions hold approximately 40 percent of the total farm mortgage debt of the United States, any trends in their collections, foreclosures, or land sales are significant in considering changes in farm real estate conditions generally. The banks and the Corporation during the first half of 1941 sold 23 percent of the properties available for sale. This compares with 20 percent in the corresponding period of 1940. In nine of the Farm Credit Districts more than one-third of the properties available for sale were sold in the recent 6-month period.

Of particular interest is the substantial improvement in the demand for farm land in areas long subject to distressed agricultural conditions: in North Dakota, South Dakota, Nebraska, and other States in the Great Plains. The proportion of available farms sold in South Dakota and Nebraska during the first half of 1941 is nearly double the corresponding proportion sold during the first half of 1940.

The banks and the Corporation are finding the current period an opportune time to dispose of properties acquired over many years. The great proportion of farms are being sold to farmers living in the same communities in which the farms are located; consequently, the buyers, as a rule, are thoroughly familiar with local factors having a bearing on the value of the properties. Farm tenants, particularly, have constituted a strong element in the current demand for farm land. About 50 percent of the farms have been sold to farm tenants.

A HEALTHY condition in the current situation is the fact that the increased activity does not reflect a price boom such as occurred during World War I. Instead, it is a recovery in the active demand for farm land that has returned after a decade characterized by a slow market for farm real estate. Most observers report that except in isolated instances the prices at which farm lands are being sold have not materially advanced. The

Public and private reports show an improvement in the farm real estate situation. Properties are changing hands at slightly higher prices, but cautiously as to prices; more importantly, properties are passing out of Governmental and corporative hands into those of farmer operators.

Notable are the increasing sales of farm lands in the Northern Great Plains, where land values have been depressed for years. (Activity in farm sales is reported all over the Plains country, down through the so-called Dust Bowl.) Stimulating factors have been the remarkable recovery in the productivity of these areas from the droughts of 1934 and 1936, the Government programs which have reduced the physical and financial hazards of crop and livestock production, and the rise in agricultural prices and incomes this year.

A good indication of what is happening in the farm real estate situation is to be found in the records of the Farm Credit Administration covering the past year—a record that shows fewer foreclosures of mortgages, increased volume of payments of principal and interest on mortgage debt held by the Government, and increased sales of farm properties.—Ed.

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banks and the Corporation have not followed a practice of raising prices on farms for sale but have continued to sell them at prices based on the long-term outlook for agriculture and at prices reflecting their true value in the market. The policy of not raising prices is founded on the philosophy that it is in the interest of both borrowers and lenders to keep loans within the capacity of the farmer to carry and repay out of earnings from the farm. This policy of maintaining prices has resulted in a more rapid liquidation of real estate inventories, which on June 30, 1941, consisted of 25,357 farms and sheriffs' certificates as compared with 32,853 farms and sheriffs' certificates held at June 30, 1940.

Additional evidence that prices have not shown boom tendencies is provided by the index of farm real estate values per acre published by the Bureau of Agricultural Economics. This index stood at 86 percent of the 1912–14 level on March 1, 1941, or only 1 point higher than a year earlier. This situation is in decided contrast to that which existed during the second year of World War I (March 1, 1915–16), when the index of farm real estate values rose 5 points—from 103 to 108.

OTHER indications of improved conditions in the farm real estate market are the downward trends in real estate acquirements and foreclosures. During the first 6 months of 1941, the Federal land banks and the Federal Farm Mortgage Corporation acquired 3,787 farms and sheriffs' certificates as compared with 4,262 of such items during the first 6 months of 1940. This reduction, moreover, was accompanied by a small decrease in the volume of foreclosures pending, which numbered 4,250 on June 30, 1941, as compared with 4,391 pending a year earlier. At the same time, loan delinquencies have declined, cash collections have increased, and many farmers have paid in full, prior to maturity, their loans to the banks and the Corporation. In connection with these prepaid loans, a recent study conducted in the Eighth Farm Credit District revealed that the source of funds used by 36 percent of the farmers liquidating their mortgage indebtedness was income derived from farm operations.

These trends indicating the improvement in real estate conditions do not reflect the impetus of temporary forces in the market, but instead the gradual recovery in agriculture during recent years. The following table shows the changes in the real estate situation of the land banks during the past 6 years.

Federal Land Banks

[Not including Federal Farm Mortgage Corporation]

Farms and Sheriffs' Certificates Acquired, Sold and Held, by Years Ended June 30, 1936–41

Year ended June 30—	Number properties acquired	Number of properties sold [1] (whole or part)	Percent of properties sold were of properties available for sale [2]	Number properties held
1936	14,948	11,891	32.4	30,257
1937	12,330	16,321	41.2	28,293
1938	7,756	13,911	40.2	23,891
1939	11,188	9,742	30.8	26,161
1940	7,871	10,924	34.5	23,136
1941	5,515	9,872	36.1	18,799

[1] Includes a small number of redemptions of sheriffs' certificates.

[2] Properties available for sale represent the number of farms owned outright at end of period plus farms and sheriffs' certificates sold during the period.

OTHER creditors in the farm mortgage field have experienced improved conditions. One large life insurance company, for example, indicated in its annual report that despite intensive efforts to increase its investment in farm mortgage loans, no increase was attained largely because payments received from farmer-borrowers on outstanding loans more than offset the amount of new loans made. Foreclosures by all classes of farm mortgage creditors also have shown a con-

tinued decline for several years. Estimates of the number of foreclosures sales by all lenders, prepared by the Farm Credit Administration, indicate that during 1936 there were 23.3 such sales per 1,000 farms mortgaged as of January 1, 1935. Comparable figures for subsequent years are 18.5 for 1937, 16.4 for 1938, 15.0 for 1939 and 8.9 for 1940.

W. A. James,
Farm Credit Administration.

Parity: What Is It?

PARITY prices and parity income for farmers are two forms of expressing an equality of exchange relationship between agriculture and industry or between persons living on farms and persons not living on farms.

The parity price concept was developed from a discussion of problems of deflation following the last World War. It was recognized that some readjustment in prices was necessary after the rise to abnormally high levels in the war period. Looking back over a century of prices it was observed that every prolonged war period had been accompanied by a marked advance in prices and that this was followed by a sharp decline. It was observed that farmers suffered most from the deflation because of the fact that farm prices fell at a very rapid rate, while the prices of many products of industry declined but slightly or were maintained at a high level. From this it was concluded that the depressing effect of deflation on farmers would be greatly lessened if the prices of the commodities farmers buy were reduced at the same time or the prices of farm products were held up to a level with the prices farmers had to pay for what they buy.

The depression starting in 1929 again emphasized the disadvantage of farmers in selling their products without restraint on a free market and buying in a protected or stabilized market.

THE Agricultural Adjustment Act of 1933 wrote the concept of price parity for agriculture into legislation and made it the basis for national agricultural programs. It was declared to be a policy of Congress to reestablish prices to farmers at a level that would give agricultural commodities a purchasing power with respect to articles that farmers buy equivalent to the purchasing power of agricultural commodities in a base period.

Since sharply rising or falling prices are likely to result in abnormal relationships, it is reasonable to select a period when the general level of prices was not changing very rapidly and before the abnormal war conditions began to affect these price relations. The period 1909–14 was therefore selected as the base period. This period was at the end of the recovery from the depression of the 1890's, and was a period of relatively stable prices.

A PARITY price is the normal or base average price of a commodity adjusted for changes in purchasing power per unit of that commodity. The legislation of 1933 provided that for most basic commodities the average of the prices for the period, August 1909–July 1914, was to be the base price; and the purchasing power index was to be the current index of prices of articles farmers buy in relation to the base period. Legislation in 1935 provided for the inclusion of interest payments per acre on farm real estate mortgages and tax payments per acre on farm real estate in the purchasing power index. Other

base periods have been prescribed for other commodities, and the purchasing power index to be applied to these other base periods is that of prices of the articles that farmers buy, without taxes, interest payments, and wages.

The process of computing a parity price may be illustrated by reference to wheat. The pre-war (1909–14) average farm price of wheat was 88.4 cents per bushel. The parity index for August 1940 was 127. Multiplying the pre-war average price by this index indicated a parity price of 112.3 cents per bushel for wheat. The actual farm price for August 1940 was 60.1 cents, thus the actual price was only 54 percent of the parity price. By August 1941 the parity index had advanced to 135 percent of the pre-war base. The pre-war average price of wheat, multiplied by this index indicated a parity price of 119.3 cents for wheat in August 1941. The actual price for that month was 88.5 cents—which was 74 percent of parity.

THE Agricultural Adjustment Act of 1938 as amended provided that "'Parity,' as applied to income, shall be that per capita net income of individuals on farms from farming operations that bears to the per capita net income of individuals not on farms the same relation as prevailed during the period from August 1909 to July 1914." In making this provision it was recognized that a better measure of real purchasing power of farmers is what their net incomes will buy. It is difficult, however, to use currently a parity income measure. Estimates of national income and of net income from agriculture require the collection of a large volume of data and as a practical matter such estimates cannot be made monthly, but only annually.

The Bureau of Agricultural Economics has recently completed a series of estimates of the net income from farming per person on farms (excluding Government payments) and the net income per person not on farms (see chart on p. 13) as required by the act of 1938. These estimates indicate that the income from agriculture per person on farms was equal to or above pre-war parity during the period 1917–20—also in 1925 and 1937.[1]

Of interest is a comparison of the income ratio with the price ratio measures on an annual basis for the period 1910–40 (see chart on p. 13). In general the two different measures of parity show similar results. Both the price and income measures show that in the years 1917–20 the returns to farmers were above parity. They both show the disparity resulting from the depressions of 1921 and 1933.

The higher income parities shown in the war period, in 1925–29, and in the

[1] Government payments are not included. Adding the Government payments would bring income to parity also in 1935 and 1936.

Income Per Person on Farms and Not on Farms, 1910–40

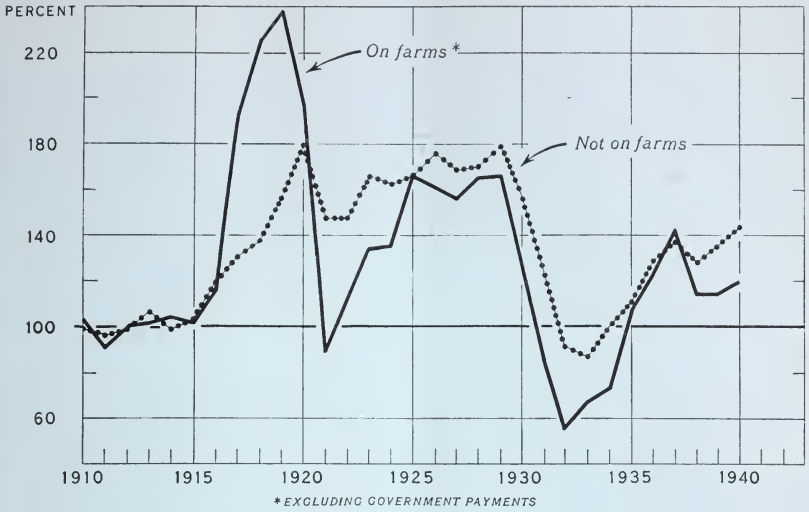
Year	Net income from agriculture per person on farms [1]	Income per person not on farms [2]
	Dollars	*Dollars*
1910	139	482
1911	123	468
1912	135	483
1913	137	521
1914	141	482
1915	137	502
1916	157	579
1917	259	638
1918	305	670
1919	321	762
1920	266	875
1921	120	718
1922	154	715
1923	181	812
1924	182	788
1925	224	810
1926	217	856
1927	211	818
1928	223	828
1929	224	870
1930	172	760
1931	115	605
1932	75	442
1933	91	417
1934	99	487
1935	144	540
1936	165	626
1937	192	670
1938	154	625
1939	154	657
1940	161	700

[1] Excluding Government payments.

[2] The indicated income per person not on farms is slightly larger than actual income, on account of the fact that some nonagricultural income is really paid to persons on farms.

INCOME PER CAPITA, ON FARMS AND NOT ON FARMS, UNITED STATES, 1910-40

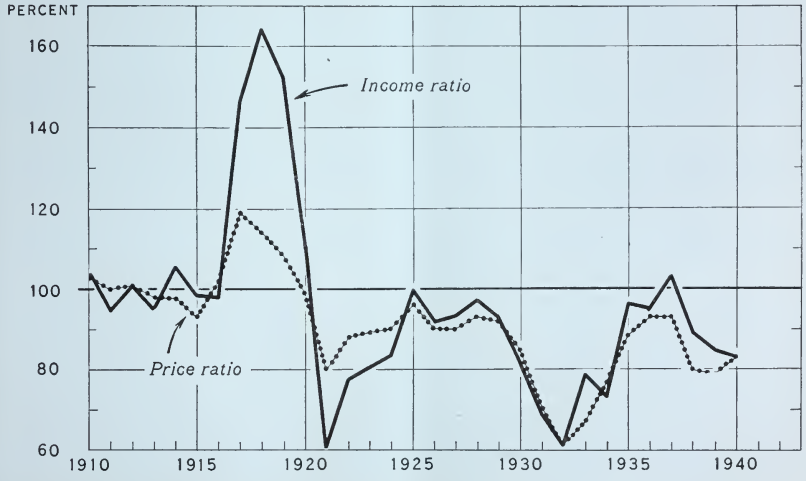
INDEX NUMBERS (1910-14=100)



*EXCLUDING GOVERNMENT PAYMENTS

years 1935–40 reflect larger productions absorbed by demands increased sufficiently to take the additional supplies without offsetting reductions in prices. In the period 1916–20 the volume of agricultural production for sale and for home consumption increased about 11 percent. Between

RATIO PER CAPITA OF FARM TO NONFARM INCOME, AND RATIO OF PRICES RECEIVED TO PRICES PAID INCLUDING INTEREST, TAXES, AND WAGES, UNITED STATES,



NOTE.—The price ratio shown in this chart is based on a revised index or prices paid, including interest, taxes, and wages. According to existing legislationi, parity prices are computed from an index of prices paid, including interest and taxes but excluding wages.

1921 and 1928 the volume increased 22 percent.

A production in 1931 on the same level as that of 1928 was sold at low prices, which resulted in a great reduction of income. But in 1937, a volume of production equal to 126.5 percent of the pre-war average, as compared with 111 in 1934, with higher prices brought an increase in income. In 1941 the demand for many of the products of the farm is so great as to enable large quantities to be marketed at higher prices, and income from farming again may reach parity.

WHY are some commodities far below parity and others above it? This situation arises on account of significant shifts in conditions of production and demand which cause significant changes in the price relations among the several farm products. In the first place, it is practically impossible to find a base period in which the price relations among these several farm products are not affected significantly by some unusual or abnormal conditions. As time passes following a chosen base, conditions change relations among the products. Notice the great difference in the relation of prices of farm products in August 1941 to parity, as shown in the Mid-month Local Market Price Report of the Agricultural Marketing Service. The price of cottonseed was 121 percent, whereas the price of apples was only 65 percent of parity. Other items reported as being above parity include rice, butterfat, chickens, hogs, beef cattle, calves, and lambs. In the cellar below parity we find two great cash crops—wheat and cotton; also the feed crops—corn, oats, and barley. Potatoes are down there with apples. In fact, you might find all the fruits and vegetables in the cellar.

The reason for the wide spread of parity relations is rather obvious when it is noted that these comparisons are on a prewar base and the important export markets for our big cash crops have been lost or greatly reduced. The growth of the Nation from a population of 100 to 130 million has provided an increased domestic market for all farm products. In the case of most livestock products except hogs, the domestic market has been absorbing the production with the demand increasing in relation to the supply. In the case of wheat and cotton, the population has not increased the demand sufficiently to absorb the surplus resulting from the loss of export markets. The great depression beginning in 1929 was followed by sharp curtailment of foreign markets. The war has further curtailed these outlets.

In some cases changes in domestic market conditions have contributed materially to the cellar position of a product. In the case of apples, for example, a large part of the export market has been lost and other fruits, including citrus, have become important competitors in the domestic market. Per capita consumption of potatoes has declined on account of changing food habits. Rather marked increases in production of many fresh fruits and vegetables in recent years have yielded such large volumes that they cannot be marketed at prices on a parity with predepression or pre-war levels.

A prewar (1909–14) base cannot or should not be used for some commodities because these commodities were not produced and marketed in significant quantities in that period, or the conditions of production and marketing are so changed now that the 1909–14 period cannot be looked upon as a normal base period for them. Dependable farm price data are scarce or entirely lacking for many of the fruits and vegetables that were grown before the war but which were not handled on a large scale commercially. During and after the first World War period the Government market quotation service was greatly improved and more price data were collected. Moreover, many of these commodities have

been grown commercially in large quantities and marketed through many months of the year only since the World War.

Soybeans were scarcely known until recent years. The earliest available quotations on soybeans are for seed to be used in producing forage crops, but now soybeans have become a very important commercial crop. Large quantities of beans are crushed, the oil being sold in competition with other fats and oils such as lard, butterfat, cottonseed and peanut oils. The by-product cake is being sold as a protein feed in competition with linseed and cottonseed meals.

Similarly, the importance of the position of cottonseed is so changed that the pre-war is not a normal base for it now. Cottonseed oil has become one of the most important products of the cotton crop. It competes directly with lard as a cooking fat, and with butter in oleomargarine. * * * A recent or post-war base within a period of fairly stable prices is needed for all such new products as soybeans, and also for the products for which the conditions of production and of demand have been so greatly changed.

The index of prices paid for articles, interest, and taxes payable on real estate constitutes the parity measure for the prices of all farm products. The August 1941 index of prices of farm products was 131. The index of prices paid, interest, and taxes was 135 percent of the pre-war base. Thus, the prices of farm products were 97 percent of parity—131 divided by 135. In the past 30 years prices of farm products have reached or exceeded parity in only one period, 1917–20.

O. C. Stine.

Our Agricultural Trade With Japan

WHEN President Roosevelt on July 25 froze Japanese assets in this country, the loss of a market for American agricultural commodities was insignificant. In 1936 our agricultural exports to Japan amounted to $95,000,000 whereas in 1940 exports had declined to $32,000,000 and in 1941 total exports for the year would probably not have reached $10,000,000 even though no restrictions had been imposed.

For several years Japan was our third best customer for agricultural exports. This position was attained almost entirely by her large takings of American raw cotton. In 1936 our cotton shipments to Japan exceeded $88,000,000 and represented over 90 percent in total value of our agricultural exports to that country. For 6 consecutive calendar years, 1931–36, Japan was our largest cotton export market. During this period the cotton textile trade in Japan was flourishing and cotton milling was the leading industry of the country. But during the past 4 years mounting military preparations in Japan have steadily pushed commercial enterprises into the background and the cotton manufacturing industry has now been relegated to a secondary position.

AT the rate Japan had been purchasing American cotton during the first 7 months of this year, her takings for 1941 would probably not have exceeded 120,000 bales. Several factors have accounted for this decline: Consumption of raw cotton by Japanese mills has been steadily declining since 1938 because Japanese authorities have prohibited their people from purchasing pure cotton textiles and the Japanese export market for cotton

piece goods has been steadily shrinking. The unfavorable competitive position of American cotton in the Japanese market this year is also an important reason for the small purchases. Other growths, such as Brazilian, Peruvian, and Indian, are relatively much cheaper than United States cotton in the Japanese market.

Offsetting the loss of this small export business our domestic cotton consumption stands to increase at the expense of silk. The United States over a 10-year period has been importing an average of 50 million pounds of silk annually from Japan. Rayon and nylon will undoubtedly be used to replace substantial quantities of silk but it is expected that cotton may benefit by as much as 40,000 to 50,000 bales.

A NUMBER of other commodities Japan formerly obtained from this country, but purchases of which have been unimportant in recent months, include leaf tobacco, hides and skins, wheat, wheat flour, processed milk, fresh and dried fruits, and canned vegetables. The Japanese Emergency Foreign Trade Control of October 1937 restricted or prohibited imports of most of these commodities. Even prior to this Control Japanese purchases of most of these commodities had declined. Cattle hides, a military necessity of which Japanese supplies were insufficient, was the only item not adversely affected.

United States tobacco exports to Japan, consisting primarily of flue-cured leaf, during the 10 years 1927–36, averaged 9,800,000 pounds with a valuation of $3,000,000 per year. This trade had been gradually declining on account of the Japanese tobacco monopoly encouraging domestic production of American flue-cured, and since the application of the Emergency Foreign Control imports of leaf from this country have disappeared.

Although the United States is a net importer of hides and skins Japan was our largest export market. These exports from 1929 to 1935 amounted to about $1,000,000 a year but during 1937 to 1939, with increased demand, Japanese purchases averaged over $2,000,000 a year. Due to our own increased requirements, hide and skin exports began declining in 1940.

Our wheat and flour exports to Japan from 1926 to 1930 averaged over 6 million bushels, but exports have been irregular and insignificant during the past decade. No exports were made to Japan during 1939 and 1940 but a shipment of approximately 1 million bushels was made in March of this year. Japanese wheat production has been steadily increasing and the country was practically self-sufficient until the military situation brought about an abnormal demand.

UNLIKE our export trade, the value of imports from Japan has not shown a downward trend since the deep depression years. In fact, agricultural imports from Japan in 1940, amounting to $118,700,000, were the largest in the past decade with the exception of one year.

Agricultural imports from Japan are largely non-competitive with American farm products, the outstanding commodity from Japan being raw silk which has represented about 90 percent of the total value of agricultural

United States: Raw Cotton Exports to Japan, Total 5-Year Average 1931–35 and Annual 1936 to Date

Year ended Dec. 31—	Japan		Total	
	Quantity	Value	Quantity	Value
	1,000 bales	*1,000 dollars*	*1,000 bales*	*1,000 dollars*
Average, 1931-35	1,897	92,625	7,537	362,541
1936	1,410	88,338	5,652	353,822
1937	925	61,724	6,070	360,023
1938	1,069	52,850	4,577	224,293
1939	854	42,498	4,809	239,222
1940	537	29,608	3,836	209,232
January-March—				
1940	338	18,597	2,324	128,082
1941	29	1,623	234	12,675

Compiled from Commerce and Navigation of the United States and records of the Bureau of Foreign and Domestic Commerce.

imports. In 1940, silk imports from Japan exceeded $105,000,000 in value. Other non-competitive items from Japan have been tea, pyrethrum flowers, and perilla oil.

Competitive agricultural imports have consisted of dry edible beans, vegetable oils, canned pineapples, and mandarin oranges. The United States formerly imported substantial quantities of dry beans from Japan but this business has gradually declined on account of increased domestic production. Vegetable oil imports have consisted primarily of rapeseed and cottonseed and these have been irregular. Canned pineapple imports have, however, been on the increase during recent years.

FRED J. ROSSITER,
Office of Foreign Agricultural Relations.

Changes in the Beef Supply

THE production of cow beef is a larger proportion of our livestock industry nowadays than it was 20 to 30 years ago. The dairy industry has been growing somewhat faster than the beef cattle industry; there has also been a shift toward marketing beef cattle at younger ages and lighter weights, and this means that more beef cows must now be kept to obtain a given volume of beef. It is estimated that more than 40 percent of the total supply of beef and veal now comes from cows of all kinds—milk cows, beef cows and so-called dual-purpose cows.

More than a third of our beef and veal supply is from dairy cattle or herds kept for milk. Nearly 60 percent of this dairy "beef" is from veal calves and discarded dairy cows which have outworn their usefulness as milk producers. Most of this cow beef appears over retail meat counters as hamburgers and frankfurters instead of roasts or other cuts of meat. Veal calves probably make up a fourth of the live weight of cattle slaughtered of the dairy breeds of cattle.

Nearly two-thirds of the total supply of beef and veal is from cattle of beef breeding, including dual-purpose cattle or cattle kept for milk as well as for beef production. These dual-purpose cattle account for about 15 percent of our total production of beef and veal. Dual-purpose cattle are common in the western Corn Belt, where much low-grade roughage is available and where the emphasis is shifted as between milk and beef, depending on relative prices and other factors. The beef from these cattle is probably nearly as good in quality as that from our regular beef herds, especially after the cattle have been fattened on corn. About 15 percent of our beef comes from this type of cattle.

CATTLE kept exclusively for beef probably account for 45 to 50 percent of the total supply of beef and veal. These cattle make up the range herds of the West and herds scattered over the remainder of the country. From these come the steers and heifers from which our best beef is obtained—the kind we expect when we order a sirloin steak. Only 60 percent of this part of the supply is from steers and young heifers. The beef cows which have outlived their usefulness as cows make up the other 40 percent.

The fattening of steers on grain is an important aspect of our beef production, especially in the Corn Belt. Before most of the beef steers can be graded "good" or "choice" at the packing house, they must be fed corn for 3 to 6 or more months. A gain of 200 to 500 pounds is put on the animals in the feed lot. This "corn-crib

cross" fattens the animal and makes for high-quality beef.

Probably not more than 25 percent of the number of cattle slaughtered (excluding veal calves) and less than 40 percent of cattle of beef breeding slaughtered are grain fattened, although a larger percentage no doubt receive some grain. Probably not more than 30 percent of our total beef supply (excluding veal calves) is grain finished.

NOT all beef needs to be grain finished to be palatable or even of relatively high grade. Formerly, there were many cattle 3 to 4 years old and over fattened exclusively on grass. The trend has been towards the marketing of younger cattle, and younger cattle on grass alone cannot generally be made fat enough for the highest grade of beef. Corn or other concentrates can be fed during a part or all of the pasture period to finish the cattle. This is one way in which the increased acreage of pasture under the conservation program may be utilized.

Without the use of corn it is difficult to make grass-fat beef of high quality from young animals. In the Corn Belt plenty of corn is available for fattening. Some parts of the range area, especially the Northern Great Plains, and some areas in the East are well adapted to producing grass-fat cattle but they lack grain for finishing younger animals. However, the 3- and 4-year-old grass-fat steers which the latter-named areas can produce efficiently usually will not bring any more money per pound than younger animals. Heavy carcasses and large retail cuts of meat have for the most part gone out of style.

R. D. JENNINGS.

United States: Exports and Imports of Specified Agricultural Commodities, September–June 1939–40 and 1940–41 and June 1940 and 1941 [1]

Commodities	Unit	September–June		June	
		1939–40	1940–41	1940	1941
EXPORTS					
Pork:		*Thousands*	*Thousands*	*Thousands*	*Thousands*
Cured pork [2]	Lb.	43,394	22,877	1,013	12,964
Other pork [3]	Lb.	69,896	36,164	2,116	18,374
Total pork	Lb.	113,290	59,041	3,129	31,338
Lard, including neutral	Lb.	208,618	148,683	12,697	20,101
Wheat, including flour	Bu.	38,069	33,996	1,835	2,711
Apples, fresh [4]	Bu.	2,822	769	26	31
Pears, fresh	Lb.	64,547	14,801	92	76
Tobacco, leaf	Lb.	274,634	136,986	20,257	14,916
Cotton, excluding linters (500 lb.)	Bale	6,131	1,041	135	78
IMPORTS					
Cattle	No.	545	621	40	37
Beef, canned, including corned	Lb.	67,346	53,756	4,851	5,326
Hides and skins [5]	Lb.	270,300	412,809	28,497	53,346
Barley malt	Lb.	52,748	32,509	3,333	3,905
Sugar, cane (2,000 lb.)	Ton	2,673	2,949	302	329
Flaxseed	Bu.	10,577	9,910	521	866
Tobacco, leaf	Lb.	52,005	54,735	5,612	5,769
Wool, excluding free in bond for use in carpets, etc	Lb.	151,077	452,453	11,301	60,459

[1] Corrected to Aug. 16, 1941.
[2] Includes bacon, hams, shoulders, and sides.
[3] Includes fresh, pickled or salted, and canned pork.
[4] Includes baskets, boxes, and barrels in terms of bushels.
[5] Excludes the weight of "other hides and skins" which are reported in pieces only.

Office of Foreign Agricultural Relations. Compiled from official records, Bureau of Foreign and Domestic Commerce.

New Products for Old

Livestock

PROPER appraisal of the food resources of the United States involves both the commodities available at a given time and prospects of replacement as needed. With regard to domestic animals and their products, these dual aspects of the situation are highly favorable. Normal supplies of the principal food animals—cattle, hogs, and sheep—are on hand. Varying with the season, the usual rate of movement to market is between 5 and 10 million head monthly, and the supply is constantly being replaced through breeding and feeding operations. Moreover, in times like the present, when new or unusual demands place an unexpected load on production facilities, meat animals may be fed to larger size and greater weights. As a still further recourse, the supplies on hand may temporarily be utilized faster than the usual rate of replacement. Under such a stimulus for production, livestock producers, of course, retain ample numbers of breeding animals and step-up breeding operations.

THE physical condition of the Nation's livestock industry is basically sound as judged from the many indications that the United States is the safest country in the world in which to produce domestic animals. This favorable condition exists largely because of measures developed and used by the veterinary profession and livestock owners for safeguarding animal health. The United States is entirely free of foot-and-mouth disease, rinderpest, pleuropneumonia, and several other diseases that take heavy toll abroad. The United States is the first important livestock country to suppress tuberculosis among its livestock. The eradication of cattle ticks is likewise nearly complete, contributing to greater diversification in southern agriculture and new food industries in the South. Thus through well-developed veterinary services and knowledge of preventive measures, livestock producers are obtaining increasing mastery over livestock ills and aiding in industrial development.

Paralleling veterinary research, investigations in livestock breeding have aided in the production of improved types of animals. Especially noteworthy is the shorter time in which meat animals now reach maturity in contrast to types formerly produced. Well-bred steers are ready for slaughter at between 1 and 2 years of age as compared with about 4 years several decades ago.

The production of a litter of pigs aggregating a ton in weight at 6 months of age was considered, a decade ago, a difficult goal to obtain. But in recent years so-called ton litters have become commonplace with 2-ton litters occasionally produced.

In poultry raising, systematic improvement under the National Poultry Improvement Plan has been going forward steadily. Progress has occurred not only in greater number of eggs per bird, but also in improved egg size, and more effective control of pullorum disease, a malady that in the past has taken heavy toll.

An extensive survey by the Bureau has revealed that, in general, improved livestock cost little, if any, more to raise than inferior types. The chief explanation is their more economical use of feed and earlier maturity resulting in quicker turnover on investment. Moreover, improved animals give a higher yield and better quality of product.

YEAR by year research yields its fruits and progressive stockmen and others have been alert to utilize

them. The following examples illustrate the scope of work relating to livestock production and uses of animal products as reported by specialists of the Bureau of Animal Industry during 1940:

Improved techniques in artificial insemination of livestock contributed to the usefulness of this method of obtaining more progeny from desirable animals. Advances in knowledge have involved proper temperatures for storing semen and improved materials for dilution.

The rate of fattening in beef production was found to influence the distribution of fat in the carcass which, in turn, influences the quality of the meat from the consumer's viewpoint.

Freezing beef at temperatures of —10° F. and lower increased tenderness materially.

Hogs of the Danish Landrace breed, when crossed with other breeds common in the United States, produced pigs with excellent yields of ham, loin, and bacon. The experimental results confirmed previous evidence of the value of this foreign breed to the livestock and food industries of the United States.

In the production of goat milk, the feeding of grain was found to be essential to maximum yield but less important to the health of the animals provided adequate hay and pasture were supplied.

A method was developed to pasteurize goat milk successfully without materially altering its physical or chemical composition.

Poultry research showed the feasibility of increasing the mineral and vitamin content of eggs by supplying laying hens with diets rich in such substances. The results of such studies have dietetic and therapeutic applications.

AN important development in the Nation's food situation has been the establishment of frozen food locker plants in which families may store home-grown and other food supplies. Surveys by the Bureau have shown that these cold-storage locker plants, limited to a few scattered establishments 10 years ago, now number well over 3,000 with one-half billion pounds of food being stored yearly. Besides the utility value they possess in reducing waste of foods through spoilage, is their advantage in enhancing the diversity of patrons' diets. Thus a distinct health asset is provided. Such establishments provide facilities for curing home-dressed meat under refrigeration, a type of service that has been especially valuable in the South. Information concerning cold-storage locker plants, from the viewpoint of service to the public, has been distributed widely to interested persons.

Through Federal meat inspection, in approximately 680 establishments in about 250 cities and towns, the Bureau of Animal Industry serves the general public and likewise numerous Government agencies. The latter include the Navy Department, the Marine Corps, the War Department (Army Engineers), Coast Guard, and Federal prisons and hospitals. Largely because of these services the Bureau of Animal Industry has been designated a defense agency. The meat-inspection service likewise certifies meats and meat food products for export, the volume last year being about 438,000,000 pounds, representing a 10-percent increase over the previous year's figure.

A development of the last year was an order by the Secretary of Agriculture setting up new definitions for meat food products which may be sold in interstate or foreign commerce as lard or rendered pork fat. The new definitions specify the tissues and ingredients that may be used in preparing these products in establishments operating under Federal meat inspection. The purpose of the order was to increase consumer protection through control of ingredients and appropriate labeling.

A still more recent regulation concerns the labeling of domestic and imported meat and meat food products. One requirement specifies that a product prepared from two or more ingredients must bear a label showing a list of ingredients in order of their predominance. Another is that the covering of a meat food, such as a cellophane wrapper, must not give the purchaser a false impression of the leanness or quality of the enclosed product. This requirement relates, in particular, to coloring or printed design.

D. S. Burch,
Bureau of Animal Industry.

New Products for Old

Dairy Products

A greater consumption of dairy products would benefit both the consumer and the producer of dairy products. That is why the Bureau of Dairy Industry continuously pushes a program of research to improve the quality of the existing major dairy products and to develop new ways to incorporate milk solids and vitamins in other foods.

As a result of a long and exhaustive investigation on the bacteriological and other factors controlling the quality of Swiss cheese, new methods have been established in the domestic Swiss-cheese factories. The average quality of the cheese, particularly in the Ohio district, has been distinctly improved. All domestic Swiss cheese is now made from clarified milk, with rennet extract in place of the "lab" formerly used, and with the addition of two and usually three pure cultures of the bacteria found to be essential to the proper ripening of this type of cheese.

Methods for making two types of foreign cheeses, the Italian Bel Paese and the French Roquefort, have been developed and with the marked curtailment of imports successful domestic manufacture has been established.

BY far the most important cheese made in this country is the type usually designated as American, but more properly, as American Cheddar. Although we consume more of this type than all other kinds combined, consumption is low on account of the lack of uniformity, the high percentage of cheese of inferior quality, and the inconvenient and unattractive package. Our investigations, which are still in progress, have shown that the control of quality is comparatively simple and easily within the reach of any properly equipped factory. For the past 3 years the Bureau has maintained a traveling laboratory in one of the leading Cheddar cheese districts, testing the results obtained in the Washington laboratories by actual trial in typical small factories. Samples of each vat of cheese made throughout the entire season have been remarkably uniform in quality, with a mild, pleasing flavor, and an entire absence of bitter and other abnormal flavors.

The Bureau has also developed an improved method of packaging American Cheddar cheese, which consists in pressing the fresh cheese curd into suitable size and shape and sealing it in cans. Each can is equipped with a valve to permit the escape of the gas generated in the ripening. Cheese packed in the valve-equipped cans ripens normally without loss of weight, growth of mold, or rind formation. This method of packing and curing cheese in cans is now firmly established on a commercial basis. One chain grocery company, having made trial packs for several years, will pack 300,000 pounds of cheese this season

in 60,000 cans. Each can contains 10 half-pound prints, each attractively wrapped and ready for sale when the can is opened in the store.

A large dairy cooperative on the Pacific Coast recently began canning Cheddar cheese for sandwich shops. Each can contains one 5-pound print about the size and shape of a sandwich loaf of bread, and therefore suitable for slicing for sandwiches. Sandwich shops find the package convenient and economical, and the effect of the quality on the consumption of cheese sandwiches is noticeable.

The first carload of can-cured cheese ordered for a chain of lunch counters in Washington, D. C., was expected, at the normal rate of sale, to be enough for a year's supply. However, the sale of Cheddar-cheese sandwiches increased about 150 percent and the first car was used in less than 6 months.

THE greatest potential source of milk constituents for use in human foods, next to skim milk, is the whey obtained in the manufacture of cheese and in making casein from skim milk.

In whey itself the food materials, sugar proteins, salts and vitamins are in a dilute and highly perishable form but the Bureau's investigations are showing how they may be incorporated in foods either in combination as they occur in the whey, or by separation and use individually.

The Bureau has demonstrated that whey may be concentrated with cane sugar to obtain a sirupy material that will keep indefinitely and that may be incorporated in various types of confectionery. It has the effect of increasing and balancing the food value of the confectionery, decreasing the sweetness by displacing some of the cane sugar, and extending the time over which the added flavoring is effective. The quantity of whey solids that may be incorporated varies with different types of candies—from 15 to 40 percent of the weight of the candy. This use of whey is now coming into commercial practice.

Whey solids are also suitable for use in various types of bakery goods and in soups, especially the acid soups which have a tendency to curdle any added milk when they are heated. Whey may be added, however, and a creamy soup will be produced which may be boiled without perceptible change.

A pea-soup powder containing whey or skim-milk solids has been devised, in which the natural antioxidant of the pea is utilized to protect the fat from rancidity and the water-absorbing property of the pea is retained. This dried material keeps well, and when it is mixed with water and boiled it makes a thick and palatable soup.

A new food product, utilizing skim milk and cull potatoes, has been produced by combining concentrated skim milk and boiled potatoes and incorporating air by whipping. This mixture is extruded through corrugated openings in the form of a ribbon and is dried in a tunnel drier. The product is a crisp wafer resembling potato chips, but, since it contains no fat it keeps indefinitely.

When whey constituents are separated there is difficulty in disposing of the milk sugar, which has a low solubility and much less sweetening property than cane sugar. The Bureau has developed a method for converting this sugar into a mixture of lactose, galactose, and dextrose, by hydrolysis at a high temperature. This mixture makes a sirup resembling the ordinary corn sirup.

In the usual process of making milk sugar from whey, the proteins are denatured so that they have little value; and in recovering the sugar, a recrystallization is necessary to obtain a sugar which will meet the requirements of the drug trade. A new process, designed to correct these defects, is now in the pilot stage. The dried or concentrated whey is subjected to extraction by alcohol and the proteins are separated on a filter press. This yields a white powder containing about

50 percent protein, which is readily soluble in cold water. It has excellent whipping properties and it is expected that uses in food products will be found.

The milk sugar crystallizes from the alcoholic filtrate, from which it is removed by centrifugation in a pure condition. The mother liquor remaining when the alcohol is recovered by distillation contains a small amount of lactose and practically all of the vitamins of the whey. When this is concentrated the lactose crystallizes with about 80 percent of the riboflavin adsorbed on the surface of the crystals. This intensely yellow powder in which the B_2 vitamin is eight times as concentrated as in the original whey powder is suitable for use in medicine and in human foods.

SKIM MILK, in some concentrated form, is used almost universally in commercial ice creams to increase the milk-solids-not-fat, thus giving the product a greater food value, a better texture and body, and making it easier to control the overrun. Heretofore, the amount of concentrated skim milk that could be added was limited by the tendency of the lactose to crystallize and give the ice cream a sandy texture. The Bureau has now raised this limit, by the development of a method for removing the greater part of the lactose from the skim milk. Skim milk with a low lactose content is now used commercially, and one company following this procedure improved the ice cream so much that sales were increased over 30 percent.

L. A. ROGERS,
Bureau of Dairy Industry.

ICE CREAM

The ice cream freezer has disappeared from many homes, but the consumption of ice cream continues to mount to new high peaks. The answer is to be found in the commercial product. More than 300 million gallons of ice cream was produced commercially in 1940. This figure probably will be exceeded this year.

* * *

Federal economists find that since commercial ice cream is pretty much a luxury product, its consumption fluctuates with the changes in consumer buying power. Production dropped to less than 149 million gallons in 1933, but production has increased since that year. Total consumption in 1941 will probably set a new all-time high record.

* * *

Figures show that more than a third of the commercial ice cream is produced and consumed in the North Atlantic States. The East North Central States rank nest, followed by the Western, the West North Central, the South Atlantic, and the South Central States. On percentage, the largest increase in production in recent years has been in the Southern States.

* * *

The big eaters of commercial ice cream are in the North Atlantic States, where the average consumption in 1939 was 3 gallons per person, as contrasted with less than half this quantity in the South. For the entire country, the per capita consumption averaged about 2.3 gallons in that year. In the South Central States the average was about half this quantity, 1.2 gallons per person.

* * *

Federal specialists point out that the figures on production and consumption of commercial ice cream tell only part of the story. There are still many home freezers in operation, on farms that keep dairy cows, and a good deal of boy-power goes a-turning on Sunday morning. The total quantity of ice cream, commercial and home made, cannot be calculated.—F. G.

Year and month	Industrial production (1935–39=100) [1]	Income of industrial workers (1924–29=100) [2]	Cost of living (1924–29=100) [3]	(1910–14=100)					
				Wholesale prices of all commodities [4]	Prices paid by farmers for commodities used in [5]—			Farm wages	Taxes [6]
					Living	Production	Living and production		
1925	91	98	101	151	164	147	157	176	270
1926	96	102	102	146	162	146	155	179	271
1927	95	100	100	139	159	145	153	179	277
1928	99	100	99	141	160	148	155	179	279
1929	110	107	99	139	158	147	153	180	281
1930	91	88	96	126	148	140	145	167	277
1931	75	67	88	107	126	122	124	130	253
1932	58	46	79	95	108	107	107	96	219
1933	69	48	75	96	109	108	109	85	187
1934	75	61	77	109	122	125	123	95	178
1935	87	69	79	117	124	126	125	103	180
1936	103	80	80	118	122	126	124	111	182
1937	113	94	83	126	128	135	130	126	187
1938	88	73	81	115	122	124	122	125	186
1939	108	84	80	113	120	122	121	123	190
1940	122	95	81	115	121	124	123	126	------
1940—August	121	96	81	113	------	------	122	------	------
September	125	99	81	114	121	123	122	------	------
October	129	101	81	115	------	------	122	129	------
November	133	104	81	116	------	------	122	------	------
December	139	108	81	117	122	125	123	------	------
1941—January	140	111	81	118	------	------	123	124	------
February	141	111	81	118	------	------	123	------	------
March	143	113	82	119	124	125	124	------	------
April	140	113	82	121	------	------	124	138	------
May	150	125	83	124	------	------	125	------	------
June	157	133	84	127	129	128	128	------	------
July	162	138	85	130	------	------	129	160	------
August [7]	------	------	------	132	------	------	131	------	------

Year and month	Index of prices received by farmers (August 1909–July 1914=100)								Ratio of prices received to prices paid
	Grains	Cotton and cotton-seed	Fruits	Truck crops	Meat animals	Dairy products	Chickens and eggs	All groups	
1925	157	177	172	153	140	153	163	156	99
1926	131	122	138	143	147	152	159	145	94
1927	128	128	144	121	140	155	144	139	91
1928	130	152	176	159	151	158	153	149	96
1929	120	144	141	149	156	157	162	146	95
1930	100	102	162	140	133	137	129	126	87
1931	63	63	98	117	92	108	100	87	70
1932	44	47	82	102	63	83	82	65	61
1933	62	64	74	105	60	82	75	70	64
1934	93	99	100	103	68	95	89	90	73
1935	103	101	91	125	118	108	117	108	86
1936	108	100	100	111	121	119	115	114	92
1937	126	95	122	123	132	124	111	121	93
1938	74	70	73	101	114	109	108	95	78
1939	72	73	77	105	110	104	94	93	77
1940	85	81	79	114	108	113	96	98	80
1940—August	76	77	79	107	110	109	90	96	79
September	77	76	73	114	114	111	104	97	80
October	80	78	79	99	112	116	112	99	81
November	83	79	71	98	112	121	120	99	81
December	81	79	75	93	111	128	122	101	82
1941—January	84	80	78	117	130	121	100	104	85
February	81	80	80	156	130	118	90	103	84
March	84	82	83	134	129	118	90	103	83
April	90	88	89	161	137	121	104	110	89
May	93	98	89	146	138	124	107	112	90
June	96	107	97	146	144	126	118	118	92
July	98	121	93	130	154	132	127	125	97
August	99	128	100	133	158	135	130	131	100

[1] Federal Reserve Board, adjusted for seasonal variation.

[2] Adjusted for seasonal variation. Revised April 1941.

[3] Monthly indexes for months not reported by the Bureau of Labor Statistics are interpolated by use of the National Industrial Conference Board cost-of-living reports.

[4] Bureau of Labor Statistics index with 1926=100, divided by its 1910–14 average of 68.5.

[5] These indexes are based on retail prices paid by farmers for commodities used in living and production reported quarterly for March, June, September, and December. The indexes for other months are interpolations between the successive quarterly indexes.

[6] Index of farm real estate taxes per acre. Base period represents taxes levied in the calendar years 1909–13, payable mostly within the period Aug. 1, 1909–July 31, 1914.

[7] Preliminary.

NOTE.—The index numbers of industrial production and of industrial workers' income shown above are not comparable in several respects. The base periods are different. The production index includes only mining and manufacturing; the income index also includes transportation. The production index is based on volume only, whereas the income index is affected by wage rates as well as by time worked. There is usually a time lag between changes in volume of production and workers' income, since output can be increased or decreased to some extent without much change in the number of workers.

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